Preliminary Alternative #29
Corresponding to Alternative Formulation Strategy 1B, 2A, 3B, 4B - Maximum

Primary Conflict	Approach to Resolve Conflict
Fisheries and Diversions (Conflict 1)	Increase Fish Productivity (1A) **Diversion Modification (1B)**
Habitat and Land Use/Flood Protection (Conflict 2)	**Preserve Existing Land Use (2A)** Create Additional Habitat Area (2B)
Water Supply Availability and Beneficial Uses (Conflict 3)	Reduce Critical Export Area Demands (3A) **Enhance Delta Supplies as Inflows (3B)**
Water Quality and Land Use (Conflict 4)	Managing Quality of Delta Inflow (4A) **Manage Instream/In-Delta Water Quality (4B)**
Minimum or **Maximum**	

Solution Overview

A total of 92 actions has been identified which meet the selection criteria for inclusion in this maximum edge alternative and addressing each of the four conflict areas. Many of the selected actions are duplicative given the implementation of other similar actions. Only 14 actions directly address improvement of habitat quality and preservation of existing land use practices. Many of the actions selected for improvement of fish productivity would indirectly improve habitat quality. Approximately one-half of the actions achieve increases in supplies to the Bay-Delta system, the solution strategy for Conflict 3.

Actions Selected

Habitat -
Populations - Actions to improve fish productivity and population abundance include modification of Bay-Delta diversion patterns, relocation of Delta export pumps, and installation of more efficient fish screens.
Diversions -
Water Use - These actions include numerous potential projects to develop greater yield through construction or expansion of reservoirs or improvements to through-Delta conveyance.
Water Quality - The actions include flow barriers to manage south Delta water quality and control salinity intrusion and also actions aimed at diluting pollutant discharges for flows in the Bay-Delta system.
Land Use/Levees/Flood Protection - The actions include reversing subsidence problems and improving levees, all to maintain existing land use practices.
Institutional -

Preliminary Assessment

The solution strategy of the alternative is generally very sound. The objectives to reach resolution within each of the four conflict areas compliment each other. Reducing impacts from diversions by modification of existing facilities and operation schemes would promote increased efficiency in diversions within the Delta. This is complimented by increases in supplies to the Bay-Delta which could be used to increase supplies both for diversion and environmental purposes. However, to create a more balanced approach, reduction in diversion demands should also be pursued. Additional measures to result in a more balanced approach include restoration of habitat quality and reducing pollutant discharges.

Alternative 29: (1B , 2 A, 3 B, 4 B - MAX)

Category	Actions Selected	Functional Basis for Inclusion	Specification for Action Implementation
	Restoration of Delta Wetland Habitat		
	-Expand wetland acquisition programs	Improved habitat for all species	Action not to impinge or alter existing land uses
	Restoration of Delta Terresrial Habitat	Improved habitat for terrestrial species	Action not to impinge or alter existing land uses
	Integrated Habitat Management Programs	Improved habitat for all species	Action not to impinge or alter existing land uses
	Control of Introduced Species		
	-Inspect for invasions of nuisance species	Improved habitat for all species	
	Delta Waterfowl Habitat Management		
	-Improve management of public waterfowl areas	Improved habitat for terrestrial species	Action not to impinge or alter existing land uses
	-Implement terrestrial predator control programs	Improved habitat for terrestrial species	
	-Increase sources and availability of wildlife forage	Improved habitat for terrestrial species	Action not to impinge or alter existing land uses
	Restoration of Upstream Anadromous Fish Habitat		
	-Restore and replenish spawning gravels	Improvements for anadromous fish species	
	-Restore channel configurations	Improvements for anadromous fish species	
	-Restore shoreline habitat conditions	Improvements for anadromous fish species	
	-Improve floodway drainage to reduce fish stranding	Improvements for anadromous fish species	
	Restoration of Upstream Riparian Habitat		
	-Revegetate degraded riparian habitats	Improved habitat for all species	Action not to impinge or alter existing land uses
	-Protect riparian lands through purchase/easements	Improved habitat for all species	Action not to impinge or alter existing land uses
	Delta Inflow Management		
	-Modify upstream reservoir operations	Increase supplies to the Delta during critical periods	
	-Provide instream pulse flows for fish passage	Increase supplies and reduce diversion impacts	
	-Provide instream flows for fish attraction	Increase supplies and reduce diversion impacts	
	Delta Outflow/Export Management		
	-Modify volumes and timing of exports	Reduction of diversion impacts	
	-Establish a Delta watermaster to manage flows	Increase supplies and reduce diversion impacts	
	Modification of Diversion Timing Patterns		
	-Modify diversion timing of export diversions	Increase supplies and reduce diversion impacts	
	-Coordinate SWP/CVP diversion timing	Reduction of diversion impacts	
	Increased Rates of Diversion Capacity		
	-Obtain approvals for expanded export capacities		
	-To reduce diversion impacts	Reduction of diversion impacts	Increase pumping capacities during critical periods
	-Enlarge export pumping capacities		
	-To reduce diversion impacts	Reduction of diversion impacts	Increase pumping capacties during critical periods
	Acquire Water Supplies for Fish and Wildlife		
	-Obtain shifts in diversion timing patterns	Reduction of diversion impacts	
	Installation and Improvement of Fish Screens		
	-Improve screens at Delta export pumps	Reduction of diversion impacts	
	-Improve other existing fish screen systems	Reduction of diversion impacts	
	-Install screens on other in-Delta diversions	Reduction of diversion impacts	
	-Install screens on upstream diversions	Reduction of diversion impacts	
	-Consolidate and screen existing small diversions	Reduction of diversion impacts	
	-Enforce screen requirements	Reduction of diversion impacts	

B—004930

Category	Actions Selected	Functional Basis for Inclusion	Specification for Action Implementation
	Install Barriers to Guide Fish Movement		
	-Install barriers to block fish movement into Old River	Reduction of diversion impacts	
	-Install barriers to keep fish in Sacramento River	Reduction of diversion impacts	
	-Install barriers to divert fish from Sacramento to western channels	Reduction of diversion impacts	
	Improvement of Fish Slavage Operations		
	-Improve design of salvage facilities	Reduction of diversion impacts	
	-Improve operation of salvage facilities	Reduction of diversion impacts	
	-Improve fish hauling and release procedures	Reduction of diversion impacts	
	Removal and Control of Aquatic Predators		
	-Harvest predators at Delta export pumps	Reduction of diversion impacts	
	-Harvest predators in upstream habitats	Reduction of diversion impacts	
	Desalination		
	-Expand desalination of San Joaquin Valley supplies	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	Water Conservation		
	-Increase use of district-wide conservation practices	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Increase use of on-farm conservation practices	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Increase use of municipal conservation practices	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Increase use of industrial conservation practices	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Implement financial incentive policies	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Educate users about conservation technologies	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Implement conservation-oriented rate structures	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	Water Reclamation		
	-Recharge groundwater with reclaimed water	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Use reclaimed water for agricultural irrigation	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Reclaim saline agricultural drainage water	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Recycle and treat water for potable reuse	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Use reclaimed water for nonpotable urban uses	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Use reclaimed water for landscape irrigation	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Use reclaimed water for power plant cooling	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Use reclaimed water for industrial processes	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Use reclaimed water to repel salinity intrusion	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Improve reclamation technologies and cost	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Educate public about water reclamation	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	Water Pricing		
	-Establish incentives for pricing to reduce demand	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Educate users about pricing feasibility	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Remove legal obstacles to pricing incentive programs	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	Watershed Management		
	-Manage vetegation cover to increase yield	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Modify weather to increase precipitation	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	New or Expanded On-Stream Storage		
	-Construct new storage north of Delta	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Enlarge existing on-stream storage reservoirs	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Modify operations of existing on-stream reservoirs	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	New or Expanded Off-Stream Storage		

B—004931

Category	Actions Selected	Functional Basis for Inclusion	Specification for Action Implementation
	-Construct new storage north of Delta	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Enlarge existing off-stream storage reservoirs	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Modify operations of existing off-stream reservoirs	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	Groundwater Banking and Conjunctive Use		
	-Modify California Water Code to encourage conjunctive use	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Establish conjunctive use programs	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Store groundwater north of Delta	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Implement techniques to increase groundwater recharge	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	Improvement of Through-Delta Conveyance		
	-Increase capacities of existing east-side channels	Increase supplies and reduce diversion impacts	
	-Increase flows from the Sacramento R. to the Central Delta	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Modify Delta levees to increase flow cross-section	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	-Construct pumps/siphons between Delta channels	Increase supplies and reduce diversion impacts	
	Change in Locations Diversion		
	-Relocate Delta export pumps from key habitats	Reduction of diversion impacts	
	-Relocate other in-Delta diversions	Reduction of diversion impacts	
	-Relocate upstream diversions from key habitats	Reduction of diversion impacts	
	-Improve diversion designs when relocating	Reduction of diversion impacts	
	Long-Term Planning for Drought Contingencies		
	-Increase water storage capacities at user locations	Increase supplies to the Delta during critical periods	Action to be implemented in area upstream of the Delta
	Water Resources Data and Information Management		
	Institutions for Integrated Long-term Water Management		
	-Establish long-term guarantees for management	Management for problem area	
	-Establish institution to implement guarantees	Management for problem area	
	Integration of Land-Use and Water-Supply Planning		
	-Coordinate land uses with water supplies	Preserve existing land uses and increase supplies	Action to be implemented in area upstream of the Delta
	Installation and Operation of Flow Barriers		
	-Install flow barriers to manage South Delta quality	Manage instream water quality	
	-Install weirs to caontrol salinity intrusion	Manage instream water quality	
	Management of Agricultural Drainage		
	-Manage drainage timing to reduce instream impacts	Manage instream water quality	
	-Dilute pollutants in Delta inflows from SJR using stored water	Manage instream water quality	
	Management of Urban and Wastewater Discharge		
	Levee Maintenance and Stabilization		
	-Modify agricultural practices to reduce subsidence	Preserve existing land uses	Actions should not impinge or alter existing land use patterns
	-Use infilling to correct past subsidence	Preserve existing land uses	Actions should not impinge or alter existing land use patterns
	Improvement of Flooding & Seismic Protections		
	-Reconstruct levees to higher design standards	Preserve existing land uses	
	-Reconstruct levees to higher seismic standards	Preserve existing land uses	
	Establishment of Long-Term Funding Mechanisms	Establish funding for all management programs	